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ABSTRACT

A LONGITUDINAL STUDY COVERING THE 1967-68 SCHOOL YEAR, THE SECOND YEAR OF A 4-YEAR STUDY, COMPARED THE ACADEMIC ACHIEVEMENT OF INDIAN HIGH SCHOOL STUDENTS ACCORDING TO TYPES OF SCHOOLS (PUBLIC AND FEDERAL), GEOGRAPHIC AREAS (ALASKA, ARIZONA, NEBRASKA, NEW MEXICO, OKLAHOMA, SOUTH DAKOTA, AND UTAH), GRADE LEVELS (9-12), AND SEXES. RESULTS OF THE CALIFORNIA ACHIEVEMENT TESTS (CAT), CALIFORNIA SHORT FORM TEST OF MENTAL MATURITY (CTMM), A QUESTIONNAIRE, THE SEMANTIC DIFFERENTIAL TEST, AND THE SCHOOL INTEREST INVENTORY WERE ANALYZED USING ANALYSIS OF VARIANCE AND ANALYSIS OF COVARIANCE. THIRTY DATA TABLES PRESENT THE FINDINGS OF THE STUDY. A COPY OF THE SEMANTIC DIFFERENTIAL TEST USED IS APPENDED. (SW)

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Southwestern Cooperative Educational Laboratory, Inc.

117 Richmond NE.

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An Analysis of Academic Achievement of Indian High School Students in Federal and Public Schools

By

Willard P. Bass

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Introduction

The major purpose of this longitudinal study is to examine the academic achievement of Indian high school students by types of schools, geographic areas, grades, and sexes. In addition, data are being gathered on a number of other psychological and sociological variables thought to be related to academic achievement.

This report covers the 1967-68 school year, which is the second year of a four-year study.

Method

The Sample

In the fall of the 1967-68 school year a total of 3785 high school students were tested in 21 different high schools located in the seven states of Alaska, Arizona, Nebraska, New Mexico, Oklahoma, South Dakota, and Utah. A total of 3375 of these students were identified as Indian. A substantial number of those tested were ninth grade students brought into the sample for the first time. An attempt was made to include in the 1967-68 testing as many as possible of those Indian students who were in the 1966-67 sample. At the time of selection in the fall of 1966, the latter sample included all Indian students enrolled in certain schools and a random selection of students from other schools, and was drawn so as to provide representation by Bureau of Indian Affairs administrative areas proportionate to the numbers of students enrolled in Federal schools in each area, and to include approximately equal numbers of students from each of the four school types: federal on-reservation, federal off-reser-

vation, public on-reservation, and public off-reservation. The new ninth grade group for 1967-68 was selected in the same manner.

In the spring of 1968 a total of 2997 students were post-tested, of which 2556 were Indian. Of this number, complete and usable data for both fall pretest and spring post-test were obtained for 1928 Indian students. Of these, approximately 45 percent were ninth grade students, not previously tested, 52 percent were students already in the sample, who had been tested in 1966-67, and 3 percent were Alaskan public school students, grades 10-12, added to the sample to give better representation in the Juneau Area.

Measuring Instruments

The following tests were administered in the pretest sessions:

1. California Achievement Tests (CAT), Advanced, Complete Battery, 1957 Edition, 1963 Norms, Form Y.
2. California Short Form Test of Mental Maturity (CTMM), 1963, Level 4. Administered to all ninth grade and to Alaska public school students, grades 10-12, new to the sample.
3. Questionnaire. Administered to all ninth grade students and to Alaska public school students, grades 10-12, new to the sample.
4. Semantic Differential. (See Appendix for sample.)

In the post-test sessions the following instruments were administered:

1. California Achievement Tests (CAT), Advanced, Complete Battery, 1957 Edition, 1963 Norms, Form W.
2. School Interest Inventory, by William Cottle, published by Houghton Mifflin Company, 1966.

Testing Procedures

Pretesting and post-testing were each accomplished in one day at each school. All schools were pretested within the period of September 26 to October 10, 1967, except for one school, which had to delay testing for several weeks because of a conflict, but was one of the last schools to be tested in the spring. All schools were post-tested within the period of April 18 to May 1, 1968.

In each geographic area testing was under the supervision of a trained and experienced test administrator who either did the testing himself or trained and supervised others, all of whom had some previous experience in testing.

Analysis of Data

In comparing academic achievement of various groups in the sample, initial individual differences between the groups were taken into consideration. By using analysis of covariance, individual differences that influence achievement were controlled, so that the presence or absence of differences in achievement, as measured by a response to a criterion, could be attributed to the educational experiences provided to students during the 1967-68 school year. In comparing groups on the basis of academic achievement, post-test California Achievement Test (CAT) raw scores were used as a criterion and differences in group means were tested by analysis of covariance. Since individual differences in scholastic aptitude and academic ability could conceivably influence criterion scores, pretest intelligence and achievement scores were used as control variables. The California Test of Mental Maturity (CTMM) intelligence quotient scores were used as a scholastic aptitude control and the pretest California Achievement Test (CAT) raw scores were used as a prior achievement control.

Findings

Achievement by School Types

Table 1 presents the means of the criterion and control variables for ninth grade students, by school types, for reading, mathematics, language, and total battery.

Table 1

Mean Scores of Criterion and Control Variables
of Ninth Grade Students
By School Type
1967-68

	School Type	N	CTMM IQ	READING		MATHEMATICS		LANGUAGE		TOTAL BATTERY	
				Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT
1)	Federal On-Reservation	244	81	47.8	43.5	62.6	54.0	93.7	87.9	204.0	185.3
2)	Federal Off-Reservation	345	83	48.4	45.6	68.1	57.7	97.4	94.3	213.8	197.6
3)	Public On-Reservation	140	78	48.2	45.1	58.5	52.3	89.9	85.7	196.7	183.2
4)	Public Off-Reservation	137	88	45.2	43.1	71.4	60.2	95.5	89.6	212.1	192.9

Treatment of ninth grade data by analysis of covariance yields sums of squares of residuals which are entered in Table 2.

The F score of 3.82 with 3 and 860 degrees of freedom for reading is significant beyond the 1 percent level, indicating that there is little doubt that the ninth grade students enrolled in the four types of schools differed in reading achievement during the 1967-68 school year. The F scores of 0.90, 0.14, and 0.26 indicate that achievement, as measured by the tests of mathematics, language, and the total battery, did not differ significantly for the four school types during the 1967-68 school year.

Table 2

Analysis of Covariance of Scores
of Ninth Grade Students
By School Type
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	863	69362			752184			749809			2714938		
Within Groups	860	68450	80		749830	872		749441	871		2712440	3154	
Difference	3	912	304	3.82*	2354	785	0.90***	368	123	0.14***	2498	833	0.26***

* Significant beyond the .01 level
*** Not significant

Since a significant F value has been found in reading, it is appropriate to compute adjusted criterion means for reading for each school type, using the within groups regression equation to determine the adjustment values. The adjusted reading criterion means are presented in Table 3. Since it is inappropriate to present adjusted means when F values are not significant, they are omitted for mathematics, language, and total battery.

Table 3

Adjusted Criterion Mean Scores
of Ninth Grade Students
By School Type
1967-68

		READING		
	School Type	Post-Test CAT	Adjustment Value	Adjusted Mean
1)	Federal On-Reservation	47.8	+0.9	48.7
2)	Federal Off-Reservation	48.4	-0.9	47.5
3)	Public On-Reservation	48.2	+0.1	48.3
4)	Public Off-Reservation	45.2	+0.3	45.5

Analysis of achievement by school types, similar to that presented in Tables 1-3 for ninth grade reading, is presented for grades ten, eleven, and twelve in Tables 4-10.

Table 4

Mean Scores of Criterion and Control Variables
of Tenth Grade Students
By School Type
1967-68

	School Type	N	CTMM IQ	READING Post-Test CAT	READING Pre-Test CAT	MATHEMATICS Post-Test CAT	MATHEMATICS Pre-Test CAT	LANGUAGE Post-Test CAT	LANGUAGE Pre-Test CAT	TOTAL BATTERY Post-Test CAT	TOTAL BATTERY Pre-Test CAT
1)	Federal On-Reservation	134	82	56.0	52.8	73.3	71.1	102.4	102.2	231.8	226.1
2)	Federal Off-Reservation	124	78	50.4	47.3	69.3	62.8	96.9	98.7	216.5	208.7
3)	Public On-Reservation	64	88	58.9	56.2	76.3	73.9	105.5	102.3	240.7	232.4
4)	Public Off-Reservation	108	90	57.4	53.0	74.9	72.5	106.6	102.3	238.9	227.7

Table 5

Analysis of Covariance of Scores
of Tenth Grade Students
By School Type
1967-68

Source of Variation	Degrees of Freedom	READING ss	READING ms	READING F	MATHEMATICS ss	MATHEMATICS ms	MATHEMATICS F	LANGUAGE ss	LANGUAGE ms	LANGUAGE F	TOTAL BATTERY ss	TOTAL BATTERY ms	TOTAL BATTERY F
Total Sample	427	35036			39870			43180			154632		
Within Groups	424	34985	82		38268	90		41378	98		153883	363	
Difference	3	51	17	***0.21	1602	534	*5.9	1802	601	*6.1	749	250	***0.69

* Significant beyond the .01 level
*** Not significant

Table 6

Adjusted Criterion Mean Scores
of Tenth Grade Students
By School Type
1967-68

		MATHEMATICS			LANGUAGE		
	School Type	Post-Test CAT	Adjustment Value	Adjusted Mean	Post-Test CAT	Adjustment Value	Adjusted Mean
1)	Federal On-Reservation	73.3	-1.2	72.1	102.4	-0.6	101.8
2)	Federal Off-Reservation	69.3	+6.8	76.1	96.9	+2.7	99.6
3)	Public On-Reservation	76.3	-4.5	71.8	105.5	-1.4	104.1
4)	Public Off-Reservation	74.9	-3.6	71.3	106.6	-1.6	105.0

Table 7

Mean Scores of Criterion and Control Variables
of Eleventh Grade Students
By School Type
1967-68

				READING		MATHEMATICS		LANGUAGE		TOTAL BATTERY	
	School Type	N	CTMM IQ	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT
1)	Federal On-Reservation	110	78	57.9	54.9	76.4	72.2	105.1	103.4	239.4	230.5
2)	Federal Off-Reservation	123	83	57.7	55.3	73.9	69.9	106.8	105.2	238.4	230.4
3)	Public On-Reservation	76	81	65.7	63.0	80.8	78.8	110.8	111.1	257.3	252.9
4)	Public Off-Reservation	68	90	64.4	58.8	75.6	73.6	113.1	109.9	253.1	242.3

Table 8

Analysis of Covariance of Scores
of Eleventh Grade Students
By School Type
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	374	35477			50227			46231			168180		
Within Groups	371	35124	95		49896	134		46050	124		167247	451	
Difference	3	353	118	*** 1.2	331	110	*** 0.82	181	60	*** 0.48	933	311	*** 0.69

*** Not significant

Table 9

Mean Scores of Criterion and Control Variables
of Twelfth Grade Students
By School Type
1967-68

	School Type	N	CTMM IQ	READING		MATHEMATICS		LANGUAGE		TOTAL BATTERY	
				Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT
1)	Federal On-Reservation	86	80	62.1	56.9	80.6	78.0	115.4	113.0	258.1	247.9
2)	Federal Off-Reservation	67	81	66.8	64.0	79.3	77.5	111.0	112.0	257.1	253.3
3)	Public On-Reservation	48	84	64.5	63.3	80.7	75.2	118.1	114.5	263.3	253.0
4)	Public Off-Reservation	54	83	63.5	61.6	81.7	77.9	112.7	111.1	257.9	250.6

Table 10

Analysis of Covariance of Scores
of Twelfth Grade Students
By School Type
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	252	25461			30435			24079			106258		
Within Groups	249	24945	100		30188	121		23386	94		104528	420	
Difference	3	516	172	*** 1.7	247	82	*** 0.68	693	231	*** 2.5	1730	577	*** 1.4

*** Not significant

A summary of adjusted criterion achievement means by school types for 1967-68 is presented in Table 11. Since significant F values were found only for ninth grade reading, tenth grade mathematics, and tenth grade language, the presentation of adjusted criterion means is limited to these three categories.

Table 11

Adjusted Criterion Achievement Means
of Total Sample
By Grade and School Type

		READING		MATHEMATICS		LANGUAGE	
	School Type	9th	Rank	10th	Rank	10th	Rank
1)	Federal On-Reservation	48.7	1	72.1	2	101.8	3
2)	Federal Off-Reservation	47.5	3	76.1	1	99.6	4
3)	Public On-Reservation	48.3	2	71.8	3	104.1	2
4)	Public Off-Reservation	45.5	4	71.3	4	105.0	1

It should be noted that significant differences in achievement between school types were found for only three of sixteen categories, and no clear pattern of superiority is evident in these three. Obviously, the evidence leads to the conclusion that when individual differences in scholastic aptitude and academic ability were controlled, differences in achievement between students in the four types of schools were negligible in 1967-68.

These findings are at variance with those for 1966-67 when differences in achievement were found to be significant in ten of the sixteen categories and generally favored Bureau of Indian Affairs schools.

Achievement by Areas

An analysis of achievement by geographic areas was also made, similar to the analysis made for school types. Designated areas correspond to Bureau of Indian Affairs administrative areas. Tables 12-23 present mean scores, analysis of covariance data, and adjusted criterion means for each grade by areas.

Table 12

Mean Scores of Criterion and Control Variables
of Ninth Grade Students
By Area
1967-68

				READING		MATHEMATICS		LANGUAGE		TOTAL BATTERY	
	Area	N	CTMM IQ	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT
1)	Aberdeen	237	82	49.2	45.3	64.9	56.7	94.9	88.7	209.0	190.6
2)	Muskogee	71	91	52.5	49.5	66.1	57.8	97.8	98.2	216.4	205.5
3)	Navajo	361	80	46.0	43.0	63.7	53.9	94.0	89.0	203.8	185.9
4)	Phoenix	124	81	43.0	40.7	59.2	51.0	88.6	87.0	190.7	178.6
5)	Juneau	73	86	54.3	51.4	86.6	72.8	106.3	100.9	247.2	225.1

In testing differences in achievement between areas using analysis of covariance, post-test achievement scores were used as the criterion and pretest achievement scores and intelligence scores were used as control variables, just as they were in analyzing achievement by school types.

Table 13

Analysis of Covariance of Scores
of Ninth Grade Students
By Area
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	863	69362			752184			749810			2717171		
Within Groups	859	68673	80		748792	872		745665	868		2703273	3147	
Difference	4	689	172	*** 2.1	3392	848	*** 0.97	4145	1036	*** 1.2	13898	3474	*** 1.1

*** Not significant

Table 14

Mean Scores of Criterion and Control Variables
of Tenth Grade Students
By Area
1967-68

	Area	N	CTMM IQ	READING Post-Test CAT	READING Pre-Test CAT	MATHEMATICS Post-Test CAT	MATHEMATICS Pre-Test CAT	LANGUAGE Post-Test CAT	LANGUAGE Pre-Test CAT	TOTAL BATTERY Post-Test CAT	TOTAL BATTERY Pre-Test CAT
1)	Aberdeen	115	92	66.4	62.1	81.6	77.0	108.8	105.9	256.8	245.0
2)	Muskogee	12	88	53.2	48.8	72.3	62.3	102.9	101.7	228.3	212.7
3)	Navajo	180	79	49.4	46.5	68.0	65.9	99.5	98.2	216.9	210.6
4)	Phoenix	97	82	50.3	48.1	67.6	63.8	97.9	99.0	215.7	210.9
5)	Juneau	26	90	64.8	57.5	90.1	85.0	109.6	109.8	264.5	252.3

Table 15

Analysis of Covariance of Scores
of Tenth Grade Students
By Area
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	472	35036			39871			43180			154603		
Within Groups	423	33893	80		38997	92		42328	100		150528	356	
Difference	4	1143	286	3.56 *	874	218	2.37 ***	852	213	2.13 ***	4075	1019	2.86 **

* Significant beyond the .01 level
** Significant beyond the .05 level
*** Not significant

Table 16

Adjusted Criterion Mean Scores
of Tenth Grade Students
By Area
1967-68

Area	READING			TOTAL BATTERY		
	Post-Test CAT	Adjustment Value	Adjusted Mean	Post-Test CAT	Adjustment Value	Adjusted Mean
1) Aberdeen	66.4	-9.3	57.1	256.8	-22.5	234.3
2) Muskogee	53.2	+1.7	54.9	228.3	+ 7.7	236.0
3) Navajo	49.4	+4.9	54.3	216.9	+12.1	229.0
4) Phoenix	50.3	+3.2	53.5	215.7	+11.0	226.7
5) Juneau	64.8	-5.4	59.4	264.5	-28.7	235.8

Table 17

Mean Scores of Criterion and Control Variables
of Eleventh Grade Students
By Area
1967-68

Area	N	CTMM IQ	READING		MATHEMATICS		LANGUAGE		TOTAL BATTERY	
			Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT
1) Aberdeen	99	87	71.0	65.3	80.3	77.2	115.3	111.7	266.6	254.2
2) Muskogee	21	93	63.8	58.4	70.0	68.0	108.6	111.1	242.3	237.6
3) Navajo	129	77	53.1	50.8	72.9	69.3	101.7	100.1	227.7	220.2
4) Phoenix	99	82	58.4	56.0	76.4	72.8	108.2	107.9	243.0	236.6
5) Juneau	29	85	63.4	63.6	82.0	79.9	113.3	112.0	258.8	255.5

Table 18

Analysis of Covariance of Scores
of Eleventh Grade Students
By Area
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	374	35477			50227			46231			168182		
Within Groups	370	33972	92		50100	135		44990	122		164464	444	
Difference	4	1505	376	4.09 *	127	32	0.23 ***	1241	310	2.55 **	3718	929	2.09 ***

* Significant beyond the .01 level
** Significant beyond the .05 level
*** Not significant

Table 19

Adjusted Criterion Mean Scores
of Eleventh Grade Students
By Area
1967-68

	READING			LANGUAGE		
Area	Post-Test CAT	Adjustment Value	Adjusted Mean	Post-Test CAT	Adjustment Value	Adjusted Mean
1) Aberdeen	71.0	-7.2	63.8	115.3	-4.4	110.9
2) Muskogee	63.8	-1.9	61.9	108.6	-4.9	103.7
3) Navajo	53.1	+6.2	59.3	101.7	+5.8	107.5
4) Phoenix	58.4	+1.2	59.6	108.2	-0.7	107.5
5) Juneau	63.4	-5.6	57.8	113.3	-4.4	108.9

Table 20

Mean Scores of Criterion and Control Variables
of Twelfth Grade Students
By Area
1967-68

			READING		MATHEMATICS		LANGUAGE		TOTAL BATTERY	
Area	N	CTMM IQ	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT	Post-Test CAT	Pre-Test CAT
1) Aberdeen	61	84	69.4	63.2	81.0	75.1	117.1	113.6	267.4	251.9
2) Muskogee	11	85	63.2	60.3	69.6	69.1	107.5	112.8	240.4	242.2
3) Navajo	99	80	60.7	57.1	79.2	77.3	114.1	111.9	254.0	246.3
4) Phoenix	62	80	61.3	60.7	78.8	76.8	111.5	111.1	251.6	248.6
5) Juneau	22	83	73.0	73.3	95.6	89.0	117.5	117.0	286.1	279.2

Table 21

Analysis of Covariance of Scores
of Twelfth Grade Students
By Area
1967-68

Source of Variation	Degrees of Freedom	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
		ss	ms	F	ss	ms	F	ss	ms	F	ss	ms	F
Total Sample	252	25461			30435			24079			106258		
Within Groups	248	24495	99		29293	118		23153	93		100534	405	
Difference	4	966	242	2.45**	1142	286	2.42**	926	231	2.48**	5724	1431	3.53*

* Significant beyond the .01 level
** Significant beyond the .05 level

Table 22

Adjusted Criterion Mean Scores
of Twelfth Grade Students
By Area
1967-68

Area	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
	Post-Test CAT	Adjustment Value	Adjusted Mean	Post-Test CAT	Adjustment Value	Adjusted Mean	Post-Test CAT	Adjustment Value	Adjusted Mean	Post-Test CAT	Adjustment Value	Adjusted Mean
1	69.4	- 2.3	67.1	81.0	+ 1.5	82.5	117.1	-1.3	115.8	267.4	- 1.8	265.6
2	63.2	+ 0.1	63.3	69.6	+ 6.6	76.2	107.5	-0.8	106.7	240.4	+ 6.7	247.1
3	60.7	+ 3.4	64.1	79.2	+ 0.2	79.4	114.1	+0.9	115.0	254.0	+ 4.7	258.7
4	61.3	+ 0.4	61.7	78.8	+ 0.5	79.3	111.5	+1.5	113.0	251.6	+ 2.4	254.0
5	73.0	-10.5	62.5	95.6	-10.2	85.4	117.5	-4.1	113.4	286.1	-26.3	259.8

Table 23

Adjusted Criterion Achievement Means
of Total Sample
By Grade and Area
1967-68

Area	READING						MATH		LANGUAGE				TOTAL BATTERY			
	10th	Rank	11th	Rank	12th	Rank	12th	Rank	11th	Rank	12th	Rank	10th	Rank	12th	Rank
1) Aberdeen	57.1	2	63.8	1	67.1	1	82.5	2	110.9	1	115.8	1	234.3	3	265.6	1
2) Muskogee	54.9	3	61.9	2	63.3	3	76.2	5	103.7	5	106.7	5	236.0	1	247.1	5
3) Navajo	54.3	4	59.3	4	64.1	2	79.4	3	107.5	3	115.0	2	229.0	4	258.7	3
4) Phoenix	53.5	5	59.6	3	61.7	5	79.3	4	107.5	3	113.0	4	226.7	5	254.0	4
5) Juneau	59.4	1	57.8	5	62.5	4	85.4	1	108.9	2	113.4	3	235.8	2	259.8	2

Table 23 presents a summary of adjusted criterion achievement means by areas and grades for 1967-68 for the eight categories in which achievement differences were found to be significant. The 1966-67, first year data revealed significant differences in achievement between areas for all sixteen possible categories.

On the basis of the adjusted post-test achievement means shown in Table 23, a hierarchical pattern of achievement by areas for 1967-68, from high to low, appears as follows: Aberdeen, Juneau, Navajo, Muskogee, Phoenix. This pattern is at considerable variance with the pattern for the previous year, 1966-67, which was as follows: Juneau, Phoenix, Aberdeen, Muskogee, Navajo.

Achievement By Grades

Pretest and post-test achievement data for each grade for 1967-68 are presented in Table 24. The data differ in only minor detail from those presented in a similar table in the first year report for the 1966-67 school year.

Again, it is evident that academic achievement is progressive from grade 9 through grade 12 but not comparable with national norms. For example, Indian students are about one year retarded academically, as measured by the total battery score, when they enter ninth grade, but are about two and one-half years retarded when about to graduate from high school. Percentile rankings demonstrate this regression characteristic very strikingly. Based upon total battery scores, ninth grade students rank at percentile 27, while twelfth grade students rank at percentile 14. Interestingly, the latter percentile rankings are identical to those for 1966-67. Again, as in 1966-67, the highest ranking is in language and the lowest is in mathematics.

Table 24

Pretest and Post-Test Academic Achievement Data By Grade
California Achievement Test Battery
School Year 1967-68

Grade	Test	Actual Grade Placement	READING			MATHEMATICS			LANGUAGE			TOTAL BATTERY		
			Mean Raw Score	Grade Placement	Percentile Rank	Mean Raw Score	Grade Placement	Percentile Rank	Mean Raw Score	Grade Placement	Percentile Rank	Mean Raw Score	Grade Placement	Percentile Rank
	Pre-Test	9.1	44.5	8.0	34	56.2	7.3	16	90.4	8.8	46	191.1	8.0	27
	Post-Test	9.8	47.7	8.3	27	65.5	7.9	21	94.8	9.2	38	208.0	8.5	27
	Pre-Test	10.1	51.7	8.7	27	69.5	8.2	24	101.2	9.8	42	222.4	8.9	30
	Post-Test	10.8	55.2	9.0	21	73.0	8.4	21	102.3	9.8	30	230.5	9.2	24
	Pre-Test	11.1	57.4	9.2	21	73.0	8.4	18	106.7	10.2	30	237.1	9.4	24
	Post-Test	11.8	60.6	9.6	18	76.3	8.7	16	108.3	10.3	24	245.2	9.7	18
	Pre-Test	12.1	61.0	9.6	14	77.3	8.8	16	112.6	10.7	27	250.8	9.9	16
	Post-Test	12.8	64.1	9.9	12	80.5	9.2	14	114.2	10.8	21	258.8	10.2	14

Achievement By Sex

When pretest and post-test achievement scores are examined by sex, it is seen from Table 25 that boys ranked slightly higher than girls in reading and considerably higher in mathematics, while girls scored substantially higher than boys in language. This is consistent with the findings of the first year of the study on both the pretest and post-test.

Table 25

Pretest and Post-Test Mean Raw Scores
By Sex and Grade
California Achievement Battery
1967-68

		READING		MATHEMATICS		LANGUAGE	
		Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
9th Grade	Male	45.7	49.1	57.6	69.0	87.5	92.6
	Female	43.3	46.4	54.8	62.3	93.1	97.0
10th Grade	Male	52.6	55.4	70.6	74.6	97.1	98.1
	Female	50.8	55.1	68.5	71.4	105.3	106.5
11th Grade	Male	58.2	62.0	77.4	80.0	104.8	105.8
	Female	56.8	59.3	68.7	72.7	108.6	110.7
12th Grade	Male	61.9	65.0	81.7	85.2	108.1	108.6
	Female	60.2	63.4	73.3	76.2	116.6	119.2

The Semantic Differential

A Semantic Differential was administered in the fall of 1967. In this instrument students were asked to react to ten concepts: SCHOOL, TEACHERS, MY SUCCESS IN SCHOOL, MYSELF AS A PERSON, INDIAN, WHITE MAN, MY PRESENT LIFE, MY FUTURE, EDUCATION, COLLEGE. Under each concept, twelve bipolar seven-point scales, using adjective pairs, were presented, three for each of four major factors. The four major factors and their opposite adjective pairs were as follows: Evaluation (cognitive)--good-bad, valuable-worthless, important-unimportant; Evaluation (affective)--pleasant-unpleasant, ugly-beautiful, nice-awful; Potency--weak-strong, shallow-deep, influential-powerless; Activity--fast-slow, busy-idle, active-passive.

The following is the general format used:

SCHOOL

1. Good ___ ___ ___ ___ ___ ___ ___ Bad
2. Weak ___ ___ ___ ___ ___ ___ ___ Strong

etc.

Each scale was scored as follows:

Pleasant 7 6 5 4 3 2 1 Unpleasant

A score of 1 on the above scale indicates a rating of very unpleasant, 2 - quite unpleasant, 3 - slightly unpleasant, 4 - neutral, 5 - slightly pleasant, 6 - quite pleasant, 7 - very pleasant.

Table 26 presents mean scores of factors under each of the concepts for school types and also for each grade. The score for each factor was derived by averaging the mean scores of the factor's three scales.

Table 26

Mean Scores of Factors for Concepts of Semantic Differential By School Type and By Grade

Factors	School Type				Grade				Total Sample
	Fed. On-Res.	Fed. Off-Res.	Pub. On-Res.	Pub. Off-Res.	9th	10th	11th	12th	
	S C H O O L								
Evaluation (Cog.)	5.88	6.05	5.99	5.96	5.87	5.99	6.03	6.18	5.97
Evaluation (Aff.)	5.35	5.33	5.16	5.04	5.21	5.33	5.23	5.15	5 23
Potency	4.56	4.80	4.87	4.90	4.80	4.66	4.77	4.89	4.78
Activity	5.07	5.24	5.14	5.16	5.16	5.15	5.13	5.16	5.15
	T E A C H E R S								
Evaluation (Cog.)	5.49	5.58	5.61	5.42	5.44	5.53	5.65	5.63	5.53
Evaluation (Aff.)	5.15	5.11	5.06	4.79	5.01	5.07	5.12	5.00	5.04
Potency	4.44	4.59	4.73	4.68	4.58	4.53	4.66	4.71	4.60
Activity	5.07	5.26	5.1[illegible]	5.18	5.16	5.18	5.17	5.18	5.17
	M Y S U C C E S S I N S C H O O L								
Evaluation (Cog.)	5.50	5.63	5.57	5.46	5.46	5.52	5.59	5.79	5.55
Evaluation (Aff.)	5.19	5.15	4.99	4.95	5.08	5.09	5.03	5.10	5.08
Potency	4.53	4.50	4.57	4.52	4.51	4.[illegible]6	4.53	4.69	4.53
Activity	4.98	5.08	5.01	4.91	5.01	4.93	4.96	5.14	5.00
	M Y S E L F A S A P E R S O N								
Evaluation (Cog.)	5.06	5.11	4.98	4.99	5.05	5.01	4.99	5.12	5.04
Evaluation (Aff.)	4.93	5.06	4.91	4.89	4.96	4.96	4.93	4.98	4.95
Potency	4.36	4.46	4.43	4.46	4.41	4.37	4.46	4.53	4.43
Activity	4.88	5.10	4.99	5.04	5.00	4.99	4.96	5.09	5.00
	I N D I A N								
Evaluation (Cog.)	5.65	5.71	5.32	5.51	5.56	5.55	5.53	5.57	5.55
Evaluation (Aff.)	5.48	5.56	5.06	5.19	5.37	5.33	5.30	5.29	5.34
Potency	4.77	4.83	4.52	4.77	4.79	4.64	4.67	4.73	4.72
Activity	5.22	5.48	4.97	5.26	5.30	5.28	5.12	5.16	5.24
	W H I T E M A N								
Evaluation (Cog.)	4.91	4.88	5.26	4.81	4.83	4.99	5.11	5.15	4.97
Evaluation (Aff.)	4.82	4.74	4.98	4.62	4.72	4.81	4.90	4.84	4.80
Potency	4.32	4.32	4.65	4.27	4.26	4.37	4.54	4.66	4.4[illegible]
Activity	4.94	4.97	5.18	4.83	4.85	5.00	5.09	5.23	4.99
	M Y P R E S E N T L I F E								
Evaluation (Cog.)	5.44	5.51	5.48	5.38	5.39	5.44	5.45	5.67	5.46
Evaluation (Aff.)	5.26	5.28	5.22	5.16	5.25	5.18	5.21	5.31	5.24
Potency	4.50	4.59	4.58	4.62	4.55	4.50	4.57	4.74	4.57
Activity	5.07	5.25	5.21	5.19	5.14	5.14	5.19	5.34	5.18
	M Y F U T U R E								
Evaluation (Cog.)	5.58	5.74	5.68	5.70	5.63	5.64	5.70	5.86	5.68
Evaluation (Aff.)	5.39	5.48	5.36	5.40	5.42	5.38	5.38	5.45	5.41
Potency	4.75	4.77	4.78	4.90	4.78	4.75	4.80	4.93	4.80
Activity	5.26	5.40	5.31	5.39	5.33	5.34	5.30	5.42	5.34
	E D U C A T I O N								
Evaluation (Cog.)	6.03	6.13	6.09	6.05	5.95	6.11	6.16	6.28	6.08
Evaluation (Aff.)	5.60	5.63	5.37	5.46	5.51	5.52	5.50	5.59	5.52
Potency	4.87	4.97	5.04	4.97	4.88	4.88	5.03	5.23	4.96
Activity	5.46	5.57	5.47	5.45	5.46	5.50	5.49	5.59	5.49
	C O L L E G E								
Evaluation (Cog.)	5.88	6.03	5.95	5.98	5.94	5.98	5.97	5.97	5.96
Evaluation (Aff.)	5.52	5.52	5.38	5.43	5.52	5.47	5.40	5.39	5.46
Potency	4.91	4.95	5.05	5.06	4.93	4.94	5.04	5.14	4.99
Activity	5.49	5.60	5.47	5.53	5.53	5.52	5.51	5.52	5.52

Comparing Semantic Differential Scores By Concepts

A comparison of total sample mean scores for the various concepts in Table 26 reveals that Indian high school students have a high regard for education. On the Cognitive Evaluation factor, EDUCATION was rated highest, SCHOOL second, and COLLEGE third. On the Affective Evaluation factor, EDUCATION was rated highest and COLLEGE next highest, but SCHOOL was rated down in sixth position. Evidently, school was liked less than it was valued. On both the Potency and Activity factors, COLLEGE was rated first and EDUCATION second. The concept, TEACHERS, was rated much lower than EDUCATION or COLLEGE on all factors and lower than SCHOOL on all factors except Activity, where it was rated only slightly higher.

Apparently, Indian students were quite optimistic about their future, since they rated the concept, MY FUTURE, fourth highest on the Cognitive Evaluation factor and third highest on each of the other factors. However, a low self-concept is indicated by the low scores on MYSELF AS A PERSON, which is rated next to last on all four factors. The concept, WHITE MAN, scored lowest on every factor.

Comparing Semantic Differential Scores By School Types

In comparing scores for the four types of schools, attention is called to the following observations:

1. Federal on-reservation school students rated the concept, SCHOOL, lower on Cognitive Evaluation, Potency, and Activity than did the other school types, but they apparently liked school more, since they rated it higher on Affective Evaluation than did the others. Federal off-reservation students were the only group to rate SCHOOL higher than the mean on all four factors.

2. Of the four school types, public off-reservation students rated TEACHERS lowest on both Evaluation factors, and especially low on the Affective Evaluation factor. On the Potency and Activity factors, federal on-reservation students rated TEACHERS lowest.
3. Scores on the concept, MYSELF AS A PERSON, indicate that federal off-reservation students have a somewhat higher self-concept than do the other groups.
4. Indian students rated INDIAN much higher than WHITE MAN, with the striking exception of those in public on-reservation schools, who rated WHITE MAN higher on two factors, Potency and Activity, and slightly higher than INDIAN overall. Furthermore, they rated INDIAN lower on every factor and WHITE MAN higher on every factor than did students of the other three school types.
5. The high scores on the concept, MY FUTURE, suggest that Indian students are optimistic about their prospects, but the somewhat lower scores of federal on-reservation students on this concept indicate that they may be somewhat less confident about their future than are students in the other types of schools.
6. On the concept, EDUCATION, federal off-reservation schools are the only ones above the mean on all four factors, and are also higher than the other types on three of the four factors.

Comparing Semantic Differential Scores By Grades

On the Cognitive Evaluation factor (Table 26), scores tend to be progressively higher for each successive grade. The only exceptions are for the concepts MYSELF AS A PERSON, INDIAN, and COLLEGE. On the Affective Evaluation factor, scores differ little from grade to grade and no

pattern of increasing scores is evident for any concepts. As Indian students progress through high school, it appears that they place an increasing value on school, teachers, education, their success in school, their present life, their future, and White people, but experienced no increased positive feelings toward them.

Scores on the Potency and Activity factors vary only little by grades for most concepts. Exceptions are increases in Activity ratings for WHITE MAN, and in Potency ratings for WHITE MAN, EDUCATION, and COLLEGE. The Indian students' ratings of INDIAN continued high for each grade but some decrease is noticeable on the Affective Evaluation and Activity factors. By contrast, although ratings of WHITE MAN are generally lower, they reveal a pattern of increase for each succeeding grade. Twelfth grade students rated WHITE MAN higher on Activity than they did INDIAN.

Comparing Semantic Differential Scores By Areas

When Semantic Differential scores are tabulated by areas, as presented in Table 27, certain differences and similarities between areas become apparent. Attention is called to the following comparisons:

1. The higher scores of Navajo and Juneau Area students on the Cognitive Evaluation factor for SCHOOL, TEACHERS, and EDUCATION.
2. The higher Affective Evaluation scores Navajo Area students registered on SCHOOL, TEACHERS, and EDUCATION.
3. The low ratings of the Phoenix and Juneau Areas and the high ratings of the Muskogee Area on the concept, MYSELF AS A PERSON.
4. The high ratings of INDIAN by the Muskogee Area and the low ratings by the Juneau Area.

Table 27

Mean Scores of Factors for Concepts of Semantic Differential By Area and By Sex

Factors	Area					Sex		Total
	Aberdeen	Muskogee	Navajo	Phoenix	Juneau	M	F	Sample
	S C H O O L							
Evaluation (Cog.)	5.89	5.87	6.08	5.84	6.08	5.95	5.99	5.97
Evaluation (Aff.)	4.94	4.93	5.54	5.21	5.02	5.22	5.24	5.23
Potency	4.87	4.84	4.71	4.57	5.09	4.75	4.81	4.78
Activity	5.09	5.32	5.19	5.01	5.29	5.17	5.14	5.15
	T E A C H E R S							
Evaluation (Cog.)	5.38	5.27	5.70	5.32	5.79	5.48	5.57	5.53
Evaluation (Aff.)	4.68	4.47	5.39	5.00	5.16	4.95	5.12	5.04
Potency	4.62	4.58	4.59	4.47	4.87	4.53	4.67	4.60
Activity	5.04	5.13	5.25	5.05	5.43	5.16	5.18	5.17
	M Y S U C C E S S I N S C H O O L							
Evaluation (Cog.)	5.48	5.63	5.61	5.42	5.61	5.57	5.53	5.55
Evaluation (Aff.)	4.88	5.25	5.25	5.00	4.89	5.10	5.06	5.08
Potency	4.59	4.67	4.51	4.38	4.59	4.59	4.47	4.53
Activity	4.98	5.24	5.04	4.85	4.96	5.05	4.96	5.00
	M Y S E L F A S A P E R S O N							
Evaluation (Cog.)	5.02	5.36	5.10	4.93	4.77	5.13	4.96	5.04
Evaluation (Aff.)	4.98	5.29	4.99	4.84	4.66	4.99	4.92	4.95
Potency	4.57	4.70	4.35	4.30	4.35	4.53	4.33	4.43
Activity	5.04	5.38	4.98	4.86	4.94	5.06	4.95	5.00
	I N D I A N							
Evaluation (Cog.)	5.50	6.03	5.68	5.33	5.18	5.50	5.61	5.55
Evaluation (Aff.)	5.26	5.67	5.47	5.24	4.90	5.26	5.41	5.34
Potency	4.75	5.07	4.70	4.59	4.68	4.75	4.70	4.72
Activity	5.02	5.67	5.35	5.22	5.12	5.26	5.22	5.24
	W H I T E M A N							
Evaluation (Cog.)	4.64	4.37	5.25	4.91	5.29	4.92	5.01	4.97
Evaluation (Aff.)	4.37	4.19	5.14	4.76	5.11	4.75	4.84	4.80
Potency	4.29	4.08	4.49	4.29	4.75	4.32	4.46	4.40
Activity	4.74	4.51	5.25	4.87	5.20	4.88	5.09	4.99
	M Y P R E S E N T L I F E							
Evaluation (Cog.)	5.49	5.60	5.48	5.32	5.35	5.48	5.44	5.46
Evaluation (Aff.)	5.21	5.39	5.34	5.08	5.01	5.24	5.23	5.24
Potency	4.74	4.72	4.48	4.41	4.63	4.64	4.51	4.57
Activity	5.20	5.38	5.17	5.05	5.22	5.17	5.19	5.18
	M Y F U T U R E							
Evaluation (Cog.)	5.81	6.00	5.63	5.40	5.68	5.57	5.77	5.68
Evaluation (Aff.)	5.50	5.70	5.42	5.16	5.30	5.30	5.51	5.41
Potency	5.03	5.09	4.66	4.57	4.90	4.80	4.80	4.80
Activity	5.43	5.67	5.30	5.16	5.29	5.30	5.38	5.34
	E D U C A T I O N							
Evaluation (Cog.)	6.02	5.94	6.19	5.90	6.19	6.02	6.13	6.08
Evaluation (Aff.)	5.32	5.45	5.76	5.31	5.46	5.45	5.58	5.52
Potency	5.13	5.00	4.89	4.71	5.21	4.96	4.97	4.96
Activity	5.45	5.50	5.59	5.34	5.48	5.45	5.53	5.49
	C O L L E G E							
Evaluation (Cog.)	5.98	6.05	6.02	5.69	6.03	5.87	6.04	5.96
Evaluation (Aff.)	5.39	5.52	5.64	5.19	5.34	5.40	5.53	5.46
Potency	5.18	5.08	4.91	4.73	5.15	4.96	5.01	4.99
Activity	5.55	5.63	5.57	5.30	5.53	5.47	5.57	5.52

5. The low ratings of WHITE MAN by the Muskogee Area and the comparatively high ratings by the Juneau and Navajo Areas.
6. The higher ratings of the Juneau Area for WHITE MAN than for INDIAN on every factor.
7. The high ratings of the Muskogee Area and the low ratings of the Phoenix Area on the concept, MY FUTURE.

Comparing Semantic Differential Scores By Sexes

It is evident in Table 27 that females generally rated the concepts higher than did males. Girls rated TEACHERS, WHITE MAN, EDUCATION, and COLLEGE higher on every factor, and SCHOOL and MY FUTURE higher on three of the four factors. Exceptions to the general trend appear for the concepts MY SUCCESS IN SCHOOL and MYSELF AS A PERSON, which were rated higher by boys than by girls on all four factors, and MY PRESENT LIFE, which was rated higher by boys on three factors. Apparently Indian boys have a better self-concept and greater confidence in themselves than do girls, but have less optimism about the future.

Responses to School Interest Inventory

In the spring of 1968 the School Interest Inventory was administered to 2164 Indian high school students. On this instrument each student was asked to respond to 150 statements by marking them true or false. Table 28 presents percentages of true and false responses to certain items which have been selected for presentation because of their information value. Some of the items presented in Table 28, like numbers 31 and 73, are not used in scoring the tests but do provide valuable personal and familial data. Other items, like numbers 8 and 93, are meaningful for individuals but not for

Table 28

Responses to Selected School Interest Inventory Items
In Percentages for Total Sample

	Items	True	False
2.	In order to succeed in a job today, you must have a good education.	97	3
5.	I take part in at least one school activity.	71	28
7.	No one in our family spends much time reading magazines or books.	32	68
10.	I have many friends.	89	8
12.	I would rather have a job than go to school.	18	81
13.	Except for my parents, most of my family will be college graduates.	37	62
16.	To get a job like my father's, I will have to finish high school.	66	33
18.	I have never failed to move with my class to the next grade.	73	26
21.	Most of the houses in our neighborhood cost more than $12,000.	24	74
22.	I would like to get married right now.	9	90
24.	School is fun.	78	19
25.	I would be happier in school if I could buy better clothes.	50	49
31.	My father earned more than $3000 last year.	34	60
34.	When I am old enough, I am going to quit school.	8	91
36.	There is at least one bedroom for every two people in our family.	57	42
37.	Even though I do my best, my grades are always below average.	39	60
39.	I have been sent to the school principal's office frequently for causing trouble in class.	12	88
40.	I do not like the subjects I have to take in school.	24	76
42.	I like to take part in sports.	84	15
43.	I am not doing well in school, but I do better outside school than most of my classmates.	38	61
45.	The teachers in our school do not seem to understand me.	30	69
48.	Our family has lots of fun together.	77	22
49.	My father changes jobs frequently.	20	77
50.	My mother did not complete eighth grade.	38	61
54.	Everyone in our family goes his own way.	35	63
55.	I am confident of my ability in school.	71	27
58.	Most people do not understand me.	40	59
60.	My father wants me to complete high school.	94	5
61.	I skip school at least once a month.	26	74
63.	My father did not complete high school.	66	31
64.	I feel my father favors other members of my family over me.	34	63
66.	Our family moves approximately once a year.	13	85
67.	I would rather quit than fail in school.	20	79
72.	I like school.	83	15
73.	I drive a car to school.	9	90
75.	I have been absent from school more than twenty days in the last year.	21	78
76.	My mother completed high school.	28	70
77.	I would rather write stories than repair machines.	36	62
79.	I have never been suspended from school.	81	17
81.	I like to skip school.	20	78
84.	My father works with his hands.	78	18

Continuation of Table 28

	Items	True	False
87.	I will have to help support younger members of my family while they go to school.	51	47
90.	I would rather stay home than go to school.	18	80
91.	My father likes to read.	57	39
94.	Counting my parents and me, there are more than five people in our family.	77	22
96.	Our family does very little together that is fun.	40	58
97.	None of my family is interested in college work.	22	76
99.	I have had to repeat at least one grade.	31	67
101.	I would like a job in which I would be working with people rather than machines.	70	28
102.	My parents usually go to church every week.	50	47
103.	I have been sent out of class frequently for causing trouble.	9	89
105.	I have more then two brothers or sisters.	74	23
107.	I would rather work with mechanical things than read.	50	47
108.	When I am absent from school I make up my assignments.	69	28
109.	Our family subscribes to at least five magazines.	31	66
111.	I would rather be in school than working full time.	73	24
114.	My father works at a desk most of the time.	13	82
115.	I am not going to get married until I finish school.	86	11
116.	It is hard traveling to and from school because we live so far away.	35	62
118.	I seldom skip school.	57	39
122.	I would never want to be expelled from school.	86	10
124.	My parents are not very active in church work.	46	50
125.	Most of my brothers and sisters did not finish high school.	26	70
126.	I am not "going steady."	66	30
130.	I would rather be taking school subjects other than the ones I am now taking.	47	48
132.	Most of the people in my homeroom have better clothes than I do.	32	62
134.	I have never skipped school.	39	56
135.	We rent our home.	25	71
136.	I get at least average grades in school.	77	19
137.	My father has to wear a suit to work.	10	83
141.	I have more friends of the opposite sex than of my own sex.	29	64
142.	What I learn in school will help very much in earning a living.	87	8
144.	I am afraid that I will not be promoted this year.	30	65
145.	My father did not complete eighth grade.	39	54

group analysis, and are omitted. Item numbers in Table 28 correspond to item numbers in the instrument. It will be noted that the percentages do not always add to 100 percent, because some items received no response from a small percentage of students.

Comparing School Interest Inventory Scores by School Types and Areas

The School Interest Inventory can be scored to obtain either weighted or unweighted totals. The weighted method, which assigns values of 1 to 9 for each item, is used in this study. Boys and girls are scored on different scales and, therefore, their scores are not comparable. The scale for boys contains 90 items and has a potential total score of 375, while the scale for girls has 86 items and a potential score of 337. There are 72 items common to both scales. Some items in the Inventory are not used for scoring on either scale.

As in golf and cross country, the lower score is the better score. High scores on the School Interest Inventory indicate lack of interest in school and high probability of dropout. In this study, mean weighted scores are used to compare the interest in school of Indian students in different types of schools and in different geographic areas. These scores are presented in Table 29. Since scores registered by boys and girls are not comparable they are presented separately.

Table 29

Mean Weighted Scores of Indian High School Students
On The School Interest Inventory
By School Types and Areas
Spring 1968

	SCHOOL TYPES				AREAS				
	Federal On-Res.	Federal Off-Res.	Public On-Res.	Public Off-Res.	Aberdeen	Muskogee	Navajo	Phoenix	Juneau
Male	120.84	114.03	100.73	108.94	102.65	118.96	123.24	111.51	111.09
Female	100.39	94.95	94.54	99.97	98.26	99.60	92.76	102.32	88.69

Inspection of Table 29 reveals that the mean scores for males differ considerably for the four school types and also for the five areas, while female scores for areas differ somewhat less than do male scores, and differ even less for school types. To test the differences for significance, analysis of variance was used. The results are presented in Table 30.

Table 30

Analysis of Variance
Of School Interest Inventory Mean Scores

	SCHOOL TYPES -- Male				AREAS -- Male			
Source of Variation	Degrees of Freedom	ss	ms	F	Degrees of Freedom	ss	ms	F
Total Sample	1066	2300964			1066	2300964		
Within Groups	1063	2240031	2107		1062	2228820	2098	
Difference	3	60933	20311	9.63*	4	72144	18036	8.59*
	SCHOOL TYPES -- Female				AREAS -- Female			
Source of Variation	Degrees of Freedom	ss	ms	F	Degrees of Freedom	ss	ms	F
Total Sample	1096	1719953			1096	1719953		
Within Groups	1093	1712221	1566		1092	1701572	1558	
Difference	3	7732	2577	1.64***	4	18381	4595	2.94**

* Significant beyond the .01 level
** Significant beyond the .05 level
*** Not significant

Interest in school, as measured by the School Interest Inventory, differed significantly for boys in the four types of school, with those in public on-reservation schools registering the greatest interest and those in federal on-reservation schools the least. Differences were also significant for boys in the five geographic areas, with those in the Aberdeen area registering the greatest interest in school and those in the Navajo area the least.

Differences for girls by school types were not significant. However, differences for girls by areas were significant, with those in the Juneau area registering the greatest interest and those in the Phoenix area the least.

When male and female scores are considered together and a combined ranking is determined for school types, the order from greatest interest to least interest is as follows: public on-reservation, public off-reservation, federal off-reservation, federal on-reservation. Similarly, the order for areas is as follows: Juneau, Aberdeen, Phoenix, Navajo, Muskogee.

There are no tables of normative data for the School Interest Inventory. However, some comparisons can be made of mean scores for Indian students in this study with mean scores for non-Indian students in other studies. A study in one high school found that the mean weighted score for male students who stayed in school was 51.98, while the mean weighted score for male students who later dropped out was 116.52. For females the scores were 56.91 for stay-ins and 103.77 for dropouts. A study of students in four other schools found mean scores of 72.69 for male stay-ins, 137.20 for male dropouts, 60.49 for female stay-ins, and 110.02 for female dropouts.

It is evident from the above figures that mean scores for Indian students tend to run high, almost approaching dropout levels. This, of course, is consistent with the high dropout rates for Indian students,

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[1]William C. Cottle, Examiner's Manual for the School Interest Inventory (Boston: Houghton Mifflin Company, 1966). Table 5, p. 16.

which have been found to be 39 percent in the Southwest[2] and 48 percent in the Northwest[3] from enrollment in grade eight to graduation from high school.

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[2]Charles S. Owens and Willard P. Bass, The American Indian High School Dropout in the Southwest (Albuquerque: Southwestern Cooperative Educational Laboratory, 1969).

[3]Alphonse D. Selinger, The American Indian High School Dropout (Portland, Oregon: Northwest Regional Educational Laboratory, 1968).

A P P E N D I X

SEMANTIC DIFFERENTIAL

SIDE 1

STUDENT INFORMATION

NAME (LAST / FIRST / MIDDLE)

SCHOOL

CITY | STATE

FORM | SEX (M F — CIRCLE ONE) | GRADE | DATE OF BIRTH (DAY MONTH YEAR)

STUDENT ID NUMBER

		0	1	2	3	4	5	6	7	8	9
1											
2											
3											
4											
5											
6											
7											

SOUTH WESTERN CO-OPERATIVE EDUCATIONAL LABORATORY

SCHOOL

1. GOOD	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BAD	2. WEAK	:::::	:::::	:::::	:::::	:::::	:::::	:::::	STRONG
3. PLEASANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNPLEASANT	4. FAST	:::::	:::::	:::::	:::::	:::::	:::::	:::::	SLOW
5. VALUABLE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	WORTHLESS	6. SHALLOW	:::::	:::::	:::::	:::::	:::::	:::::	:::::	DEEP
7. BUSY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	IDLE	8. IMPORTANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNIMPORTANT
9. UGLY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BEAUTIFUL	10. ACTIVE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	PASSIVE
11. INFLUENTIAL	:::::	:::::	:::::	:::::	:::::	:::::	:::::	POWERLESS	12. NICE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	AWFUL

TEACHERS

1. GOOD	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BAD	2. WEAK	:::::	:::::	:::::	:::::	:::::	:::::	:::::	STRONG
3. PLEASANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNPLEASANT	4. FAST	:::::	:::::	:::::	:::::	:::::	:::::	:::::	SLOW
5. VALUABLE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	WORTHLESS	6. SHALLOW	:::::	:::::	:::::	:::::	:::::	:::::	:::::	DEEP
7. BUSY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	IDLE	8. IMPORTANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNIMPORTANT
9. UGLY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BEAUTIFUL	10. ACTIVE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	PASSIVE
11. INFLUENTIAL	:::::	:::::	:::::	:::::	:::::	:::::	:::::	POWERLESS	12. NICE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	AWFUL

MY SUCCESS IN SCHOOL

1. GOOD	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BAD	2. WEAK	:::::	:::::	:::::	:::::	:::::	:::::	:::::	STRONG
3. PLEASANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNPLEASANT	4. FAST	:::::	:::::	:::::	:::::	:::::	:::::	:::::	SLOW
5. VALUABLE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	WORTHLESS	6. SHALLOW	:::::	:::::	:::::	:::::	:::::	:::::	:::::	DEEP
7. BUSY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	IDLE	8. IMPORTANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNIMPORTANT
9. UGLY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BEAUTIFUL	10. ACTIVE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	PASSIVE
11. INFLUENTIAL	:::::	:::::	:::::	:::::	:::::	:::::	:::::	POWERLESS	12. NICE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	AWFUL

MYSELF AS A PERSON

1. GOOD	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BAD	2. WEAK	:::::	:::::	:::::	:::::	:::::	:::::	:::::	STRONG
3. PLEASANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNPLEASANT	4. FAST	:::::	:::::	:::::	:::::	:::::	:::::	:::::	SLOW
5. VALUABLE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	WORTHLESS	6. SHALLOW	:::::	:::::	:::::	:::::	:::::	:::::	:::::	DEEP
7. BUSY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	IDLE	8. IMPORTANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNIMPORTANT
9. UGLY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BEAUTIFUL	10. ACTIVE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	PASSIVE
11. INFLUENTIAL	:::::	:::::	:::::	:::::	:::::	:::::	:::::	POWERLESS	12. NICE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	AWFUL

INDIAN

1. GOOD	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BAD	2. WEAK	:::::	:::::	:::::	:::::	:::::	:::::	:::::	STRONG
3. PLEASANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNPLEASANT	4. FAST	:::::	:::::	:::::	:::::	:::::	:::::	:::::	SLOW
5. VALUABLE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	WORTHLESS	6. SHALLOW	:::::	:::::	:::::	:::::	:::::	:::::	:::::	DEEP
7. BUSY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	IDLE	8. IMPORTANT	:::::	:::::	:::::	:::::	:::::	:::::	:::::	UNIMPORTANT
9. UGLY	:::::	:::::	:::::	:::::	:::::	:::::	:::::	BEAUTIFUL	10. ACTIVE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	PASSIVE
11. INFLUENTIAL	:::::	:::::	:::::	:::::	:::::	:::::	:::::	POWERLESS	12. NICE	:::::	:::::	:::::	:::::	:::::	:::::	:::::	AWFUL

SEMANTIC DIFFERENTIAL

SIDE 2

		0	1	2	3	4	5	6	7	8	9
1											
2											
3											
4											
5											
6											
7											

SOUTH WESTERN CO-OPERATIVE EDUCATIONAL LABORATORY

WHITE MAN

1. GOOD							BAD	2. WEAK							STRONG
3. PLEASANT							UNPLEASANT	4. FAST							SLOW
5. VALUABLE							WORTHLESS	6. SHALLOW							DEEP
7. BUSY							IDLE	8. IMPORTANT							UNIMPORTANT
9. UGLY							BEAUTIFUL	10. ACTIVE							PASSIVE
11. INFLUENTIAL							POWERLESS	12. NICE							AWFUL

MY PRESENT LIFE

1. GOOD							BAD	2. WEAK							STRONG
3. PLEASANT							UNPLEASANT	4. FAST							SLOW
5. VALUABLE							WORTHLESS	6. SHALLOW							DEEP
7. BUSY							IDLE	8. IMPORTANT							UNIMPORTANT
9. UGLY							BEAUTIFUL	10. ACTIVE							PASSIVE
11. INFLUENTIAL							POWERLESS	12. NICE							AWFUL

MY FUTURE

1. GOOD							BAD	2. WEAK							STRONG
3. PLEASANT							UNPLEASANT	4. FAST							SLOW
5. VALUABLE							WORTHLESS	6. SHALLOW							DEEP
7. BUSY							IDLE	8. IMPORTANT							UNIMPORTANT
9. UGLY							BEAUTIFUL	10. ACTIVE							PASSIVE
11. INFLUENTIAL							POWERLESS	12. NICE							AWFUL

EDUCATION

1. GOOD							BAD	2. WEAK							STRONG
3. PLEASANT							UNPLEASANT	4. FAST							SLOW
5. VALUABLE							WORTHLESS	6. SHALLOW							DEEP
7. BUSY							IDLE	8. IMPORTANT							UNIMPORTANT
9. UGLY							BEAUTIFUL	10. ACTIVE							PASSIVE
11. INFLUENTIAL							POWERLESS	12. NICE							AWFUL

COLLEGE

1. GOOD							BAD	2. WEAK							STRONG
3. PLEASANT							UNPLEASANT	4. FAST							SLOW
5. VALUABLE							WORTHLESS	6. SHALLOW							DEEP
7. BUSY							IDLE	8. IMPORTANT							UNIMPORTANT
9. UGLY							BEAUTIFUL	10. ACTIVE							PASSIVE
11. INFLUENTIAL							POWERLESS	12. NICE							AWFUL